REMARKS

This Amendment is in response to the Office Action mailed on April 27, 2009. Claims 1, 3, 5 and 6 are amended for clarity. Claim 11 is also amended and is supported, for example, in the specification on page 12, lines 8-9. No new matter is added. Claims 1-12 are pending.

§101 Rejections:

Claim 11 is rejected as being directed to non-statutory subject matter. In particular, the rejection notes that the contents of the claim are abstract. Applicants respectfully note that claim 11 provides that the maximal value of a frequency of the pressure oscillation or pressure pulsation is present in a vicinity of $a/D = 1/4$ and a maximal value of an amplitude relative to pressure is also present in a vicinity of $a/D = 1/4$. These define recognizable properties of the device and are not merely abstract. Also, claim 11 is amended to clarify the meaning of the maximal value of the amplitude relative to pressure based on, for example, page 12, lines 8-9 of the specification. Accordingly, Applicants assert that the features of claim 11 are not abstract and are directed to statutory subject matter. Withdrawal of this rejection is requested.

§103 Rejections:

Claims 1-6 and 8-12 are rejected as being unpatentable over Furubayashi (US Patent No. 6,427,455). This rejection is traversed.

Claim 1 is directed to a cooling device that recites, among other features, that a dimension of a second gap between the cooler and a wall surface on a back surface side of the cooler is set to be larger than 50 mm. Claim 1 further recites that the equation, $a/D = 1/2$ to $1/4$ is satisfied, where a indicates a dimension of a first gap between the cooler and the cooling fan along a front–back direction and D indicates a diameter of the cooling fan. Also, claim 1 recites an air pressure at a point located 100 mm forward of a point of rotational center of the cooling fan is allowed to oscillate or pulse by adjusting a rate of revolutions of the cooling fan.

Furubayashi does not teach or suggest these features. First, Furubayashi teaches maintaining the clearance 13 between the rear of the cooling coil 7 and the rear wall between 20-50 mm, as anything larger than 50 mm is excessively large and will cause the cold air to diffuse in the clearance 14 and thereby prevent adequate introduction of cool air to the rear of the cooling fan 8a (see column 8, lines 31-39 of Furubayashi). Thus, Furubayashi explicitly teaches away from having the clearance 13 larger than 50 mm. Accordingly, it would not be obvious to one skilled in the art to modify the configuration of Furubayashi to teach that a dimension of a second gap between the cooler and a wall surface on a back surface side of the cooler is set to be larger than 50 mm, as recited in claim 1.

Second, nowhere does Furubayashi teach or suggest that the equation, $a/D = 1/2$ to 1/4 is satisfied, where a indicates a dimension of a first gap between the cooler and the cooling fan along a front–back direction and D indicates a diameter of the cooling fan. The rejection asserts that these features are merely rearranging or reorganizing parts and within the level of ordinary skill in the art. However, an advantage of these features is that the proper air flow within the cooling device can be maintained. In contrast, Furubayashi teaches controlling air flow passing through the inside of the cooling coil 7 via the clearance 13, by setting the clearance 13 to be between 20 mm and 50 mm (see column 8, lines 21-39 and Figure 3 of Furubayashi). Accordingly, the configuration of Furubayashi does not allow one skilled in the art to contemplate modifying Furubayashi to ensure that the equation, $a/D = 1/2$ to 1/4 is satisfied, where a indicates a dimension of a first gap between the cooler and the cooling fan along a front–back direction and D indicates a diameter of the cooling fan, as recited in claim 1.

Third, nowhere does Furubayashi teach or suggest an air pressure at a point located 100 mm forward of a point of rotational center of the cooling fan is allowed to oscillate or pulse by adjusting a rate of revolutions of the cooling fan. An advantage of these features combined with the features that recite the equation $a/D = 1/2$ to 1/4 is satisfied is that a flow α, moving around both of the lateral surfaces and the back surface of the cooler, and a flow ß, passing across the front surface of the cooler, maintain a good balance that allows a sufficient heat exchange between the flow from the side of the

cooling chamber and the ambient air cooled by the cooler. Another advantage of these features is that a heat-insulating air layer, built up at an interface between the object to be cooled and the ambient air, can be removed and thereby enhance the heat exchange rate with object to be cooled. Nowhere does Furubayashi contemplate improving the heat exchange in its cooling device by having an air pressure at a point located 100 mm forward of a point of rotational center of the cooling fan be allowed to oscillate or pulse by adjusting a rate of revolutions of the cooling fan, as recited in claim 1. For at least these reasons claim 1 is not suggested by Furubayashi and should be allowed. Claims 2-6 and 8-12 depend from claim 1 and should be allowed for at least the same reasons.

Claim 7 is rejected as being unpatentable over Furubayashi in view of Symko (US Patent No. 6,574,968). This rejection is traversed. Claim 7 depends from claim 1 and should be allowed for at least the same reasons discussed above. Applicants do not concede the correctness of this rejection.

Conclusion:

Applicants respectfully assert that claims 1-12 are in condition for allowance. If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicants' primary attorney-of record, Douglas P. Mueller (Reg. No. 30,300), at (612) 455-3804.

Respectfully submitted,

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